

From Traditional Markets to Online Marketplaces: The Transformation of Consumer Behavior in the Digital Age

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ABSTRACT

This article discusses the transformation of Indonesian consumer behavior from traditional markets to digital marketplaces. The research uses a descriptive-qualitative approach based on literature studies and secondary data from BPS, APJII, Bank Indonesia, and the e-Economy SEA report. The results of the study show that changes in consumer behavior do not only occur in purchasing channels, but also in trust mechanisms, value formation, and decision-making patterns. Marketplaces expand choices, reduce information search costs, speed up transactions, and open up opportunities for MSMEs to reach a wider market. However, this transformation also poses new risks in the form of platform dependence, impulsive consumption, information asymmetry, and data protection. The novelty of the article lies in a micro-meso-macro framework that combines consumer behavior, marketplace infrastructure, and the implications of the digital economy. This study recommends strengthening consumer literacy, platform governance, and omnichannel strategies for business actors.

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1. INTRODUCTION

Indonesian consumer behavior is moving from shopping habits in traditional markets to shopping practices that are increasingly connected to marketplaces, social media, payment applications, instant logistics, and digital review systems. These changes do not necessarily mean that traditional markets are abandoned entirely. In many households, the physical market continues to function as a social space, a bargaining place, and a source of fresh produce, while the marketplace becomes a space for searching, price comparison, repurchase, and purchase of goods that require a wider variety. This transformation needs to be read as an ecosystem change, not just a shift in transaction channels [1]-[5].

The main foundation of this transformation is internet connectivity. The APJII survey shows that Indonesia's internet users in 2024 will reach 221.56 million people with a penetration rate of 79.5%, up from 78.19% in 2023. This figure expands the consumer base who can access product information, compare prices, read reviews, and make digital payments without having to be present in the physical space of the seller [3]. At the same time, the e-Conomy SEA 2025 report estimates Indonesia's digital economy to approach a GMV of US\$100 billion by 2025, with e-commerce remaining the largest contributor of around US\$71 billion [4]. Previous studies provide an important theoretical basis. Davis introduced the Technology Acceptance Model which places the perception of usability and convenience as determinants of technology acceptance [6]. Venkatesh et al. extend it through UTAUT by adding performance expectations, business expectations, social influence, and facilitation conditions [7]. Pavlou points out that the acceptance of e-commerce is not only explained by convenience and usability, but is also influenced by trust and risk perception [8]. Gefen et al. affirm the role of trust in online shopping, especially when consumers are unable to physically inspect goods [9]. Rogers through the theory of innovation diffusion explains how innovation is received through the stages of knowledge, persuasion, decision, implementation, and confirmation [10]. In Indonesia, the marketplace is not only a digital storefront, but also a trust infrastructure. The platform provides a system of escrow, ratings, reviews, recommendations, customer service, promotions, and logistics integration. For buyers, these elements reduce the cost of searching for information. For sellers, the marketplace lowers the barrier to entry into the wider market. However, it should be noted that digital efficiency also brings new risks, such as reliance on algorithms, price wars, impulsive consumption, and new information asymmetry between platforms, sellers, and consumers [11]-[13].

Changes in consumer behavior are also seen in the way consumers define value. In traditional markets, value is often formed through proximity to location, interpersonal relationships, bargaining, visual quality, and family shopping habits. In the marketplace, value is increasingly shaped by a combination of price, shipping, reviews, store score, vouchers, delivery speed, payment methods, and transaction security. Thus, purchasing decisions are the result of an interaction between economic rationality, technological convenience, social influence, and platform interface design [14]-[18]. Although many articles discuss the growth of e-commerce, there are still limited studies that link the transformation of consumer behavior to three layers of change at once, namely changes in shopping channels, changes in trust mechanisms, and changes in transaction value structures. This article places traditional marketplaces and marketplaces not as two mutually negating worlds, but as two nodes in the omnichannel consumer journey. This approach is important because Indonesians often combine physical and digital channels

in a single purchase cycle, for example looking for information in the marketplace, asking relatives, comparing in physical stores, and then completing transactions through payment applications [19]-[23].

The novelty of this article lies in the preparation of a conceptual framework for changes in Indonesian consumer behavior from a micro-meso-macro perspective. At the micro level, the article examines consumer decisions based on price, trust, reviews, risk, and convenience. At the meso level, the article examines the role of marketplaces as reputation, logistics, and payment infrastructure. At the macro level, the article links consumer transformation to digital economic growth, internet penetration, MSME inclusion, and digital consumer protection challenges. Thus, this article not only describes trends, but also proposes an analytical map to understand the direction of change in consumption in Indonesia's digital era.

2. METHOD

This study uses a descriptive-qualitative approach based on literature studies and secondary data analysis. The main data sources come from BPS's official publication on E-Commerce Statistics 2023 and 2024, the APJII survey on internet penetration, the e-Economy SEA 2024 and 2025 report, the e-commerce consumer behavior report, as well as digital economic and financial policy documents [1]-[5], [23]-[25]. This approach was chosen because the purpose of the article was not to conduct a causal estimate based on primary surveys, but to compile a conceptual synthesis of changes in consumer behavior based on macro data and academic literature. The research procedure was carried out in four stages. First, identify data sources that have direct relevance to digital consumer behavior, marketplaces, internet penetration, and the digital economy. Second, the extraction of key indicators, including internet penetration, GMV value of the digital economy, the role of e-commerce, payment methods, and characteristics of e-commerce businesses. Third, thematic groupings use three categories: factors driving adoption, changes in decision-making processes, and socio-economic implications. Fourth, the preparation of a conceptual model that links traditional markets, marketplaces, digital trust, and omnichannel consumption behavior. The quality of sources is maintained by prioritizing official government data, authoritative institutions, widely used industry reports, and reputable academic literature. The validity of interpretation is strengthened through triangulation of sources, i.e. comparing findings from statistical reports, consumer behavior theories, and technology acceptance studies. Each number in the visualization is taken from the source listed in the image caption or table. Because the data used are aggregated and public, this study does not require ethical approval based on human participants.

Table 1. Data sources and analytical functions in research

Data source	Key indicators	Role in analysis
BPS Statistik E-Commerce 2023-2024	Business Profile, Business Activity, E-Commerce Value/Revenue	Describe the supply side and digital business activities
APJII 2024	Number of Internet users and Internet penetration	Explaining the Digital Consumer Access Base
e-Conomy SEA 2024-2025	GMV of the digital economy and e-commerce	Shows the macro scale of the digital market
Chalk-Katadata 2023	Consumer Behavior and Digital Payments	Helps read online shopping patterns
Literature akademik	TAM, UTAUT, trust, retail digital	Build a theoretical framework for consumer behavior

3. RESULTS AND DISCUSSION

3.1. Digitalization as an Expansion of Consumer Choice Space

The results of the synthesis show that digitalization expands the space of consumer choice through three main mechanisms. First, marketplaces expand geographic reach because consumers in small towns can access sellers from big cities, and vice versa. Second, marketplaces lower the cost of searching for information because prices, specifications, and reviews can be compared on one screen. Third, the promotion and recommendation system speeds up the repurchase process through personalization. These three mechanisms make consumer decisions faster, but not necessarily simpler as consumers must also assess the seller's reputation, review quality, risk of non-conforming goods, and payment security [11]-[18]. This change does not mean that traditional markets have lost their function. The physical market still excels for products that require direct inspection, social relations, negotiation, and immediate purchase with no shipping costs. However, marketplaces excel in finding variety, purchasing non-fresh products, price comparisons, and cross-regional transactions. Thus, the emerging consumer behavior is not a full substitution, but a hybridization of shopping channels. Consumers choose channels based on the context of needs, product risk, urgency, and shopping experience preferences.

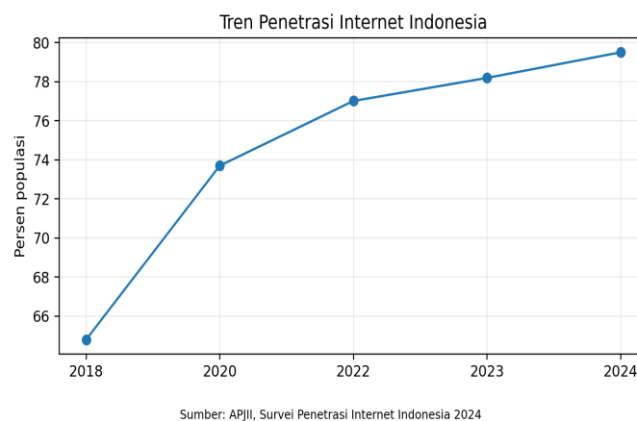


Figure 2. Indonesia's internet penetration trend is a prerequisite for expanding digital consumption.

3.2. Trust Infrastructure: From Face-to-Face to Ratings and Reviews

In traditional markets, trust is built through repeated interactions between buyers and sellers. Consumers get to know merchants, observe the quality of goods, and assess reputation through hands-on experience. In the marketplace, trust is replaced by digital mechanisms such as store ratings, number of transactions, official store labels, buyer reviews, product photos, warranties, and return policies. The mechanism reduces uncertainty, but does not eliminate risk entirely as reviews can be biased, product information can be incomplete, and search algorithms can prioritize specific ads or promotions [8], [9], [15], [16]. Digital trust is also distributed. Consumers not only trust sellers, but also trust platforms, payment providers, logistics services, and dispute resolution systems. If one component fails, the consumer's experience of the entire ecosystem can decline. Therefore, a strong marketplace competes not only on the number of products, but also on the quality of transaction governance, transparency of information, and speed of response when problems occur.

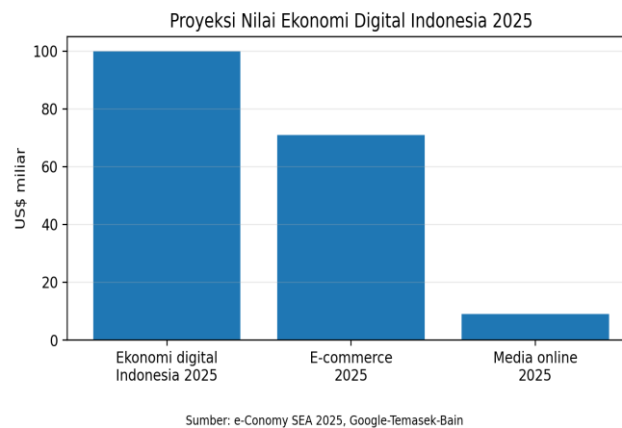


Figure 3. Projected value of Indonesia's digital economy and e-commerce position in 2025.

3.3. Value Changes: Price, Time, Convenience and Experience

Consumer value in the marketplace is a combination of final price, product quality, delivery speed, shipping costs, discounts, store reputation, and payment flexibility. In some cases, consumers do not choose the cheapest price of the item, but rather the combination that is considered the safest and most convenient. For example, stores with high ratings and fast delivery may be preferable even if the prices are a little more expensive. This phenomenon shows that digital efficiency is not solely price efficiency, but risk and time efficiency. Digital promotion also changes the rhythm of consumption. Flash sales, vouchers, free shipping, and app notifications encourage purchases that are more responsive to short-term stimulus. This strengthens the attention economy, which is a condition when platforms compete for consumer time and focus. The impact is ambivalent: on the one hand consumers get the opportunity for a cheaper price, but on the other hand consumers can experience impulse buying and difficulty distinguishing needs from promotional impulses.

3.4. MSME Marketplace and Inclusion

The marketplace provides opportunities for MSMEs to reach consumers outside the local area. The initial hurdle to opening an online store is relatively lower than opening a physical store in a strategic location. Sellers can use the catalog, promotion, shipping, and payment features that the platform provides. However, digital inclusion does not

automatically lead to competitiveness. MSMEs still need the ability to take product photos, write descriptions, stock management, packaging, customer service, and simple data analysis. Without such capacity, MSMEs can be trapped in price wars and reliance on platform promotions [19], [21], [24]. The MSME digitalization policy needs to move from simply encouraging onboarding to improving the quality of digital businesses. Training should include data literacy, transaction security, product differentiation strategies, customer service, and reputation management. Thus, the marketplace can become a space to upgrade, not just an additional sales channel.

3.5. New Risks in Digital Consumption

The main risks of digital consumption include product mismatches, data misuse, fraud, logistical delays, unbelievable review quality, and overconsumption tendencies. These risks differ from traditional market risks because they mostly occur through technological intermediaries. Consumers often don't know how algorithms display products, how behavioral data is used for personalization, or how platforms determine seller priorities. Platform transparency is an important issue in digital consumer protection [20], [21]. On the other hand, consumers also get new control tools. They can compare multiple sellers, read other buyers' experiences, store transaction history, and file complaints through the system. This means that digitalization not only creates risks, but also expands consumers' bargaining power if information is available symmetrically and dispute resolution mechanisms are effective.

3.6. Relationship of Results to Relevant Research

The findings of this article are in line with Davis and Venkatesh et al. who place convenience and usability as important factors of technology adoption [6], [7]. However, the results of the synthesis also corroborate Pavlou and Gefen et al. that marketplace adoption cannot be understood without including trust and risk [8], [9]. In the Indonesian context, high internet penetration and the growth of the digital economy accelerate the diffusion of the marketplace, as described in Rogers' theory [10]. The linkage with the digital retail literature is also seen in the shift of the shopping experience from the physical space to an omnichannel ecosystem that combines information, transactions, logistics, and payments [18]-[20].

The contribution of this article is to show that Indonesian consumer behavior does not move linearly from the traditional market to the marketplace. A more precise change is referred to as channel integration. Consumers use physical markets and marketplaces based on the context of needs. Thus, digital economy policies need to maintain a balance between marketplace innovation, strengthening traditional markets, consumer protection, and increasing the capacity of MSMEs.

Table 2. Comparison of consumer behavior in traditional markets and marketplaces

Dimensions	Traditional markets	Marketplace digital	Implications
Trust	Face-to-face, repetitive relationships	Rating, Reviews, Escrow	Trust shifts from personal to system
Pricing	Direct bargaining	Vouchers, Flash Sale, Price Comparison	Value is influenced by promotions and algorithms
Access	Physical location and hours of operation	24-hour cross-border access	Increased product selection
Risks	Quality is visible directly	inappropriate goods, fraud, data privacy	Digital consumer protection is important
Experience	Social interaction	Speed, Personalization, Convenience	Omnichannel model work

3.7. Practical Implications and Critical Reflection

The practical implication for business actors is the need for an omnichannel strategy that does not separate physical stores and digital channels. Physical stores can be spaces for experience, consultation, and quality verification, while marketplaces can be spaces for outreach, promotion, and repurchase. The combination of the two allows small businesses to maintain social closeness while gaining a wider market scale. From a consumer perspective, changes in shopping channels demand more complex evaluation capabilities. Consumers need to understand that the cheapest price doesn't always mean the best value. The store's reputation, return policy, clarity of description, and logistics costs should be assessed as part of the total price. Digital consumer literacy should teach how to read reviews, recognize fake reviews, and avoid fraudulent links. From a policy point of view, traditional markets still need to be strengthened so as not to be left behind. Market digitization can be done through online catalogs, QRIS payments, stock information, local delivery services, and community-based promotions. Thus, digital transformation does not mean replacing traditional markets, but rather expanding the function of the market to be relevant to new consumer behavior. The main drawback of the marketplace ecosystem is the possible dependence on the platform. When search algorithms, advertising costs, or promotional rules change, small sellers can be directly affected. Therefore, MSMEs need to build their own digital assets, such as customer databases, brand identities, social media channels, and product quality that distinguishes them from competitors. Platforms are important, but they shouldn't be the only competitive resource. For researchers, the transformation of consumer behavior provides space for cross-disciplinary study. Economics can examine price efficiency and elasticity, psychology can examine impulsivity and trust, data science can examine recommendations and reviews, while public policy can examine consumer protection. This combination of perspectives is necessary because the digital economy works through the interaction of technology, institutions, and human behavior.

3.8. Advanced Analysis: Scenarios, Indicators, and Implementation Strategies

The high growth scenario in the transformation of marketplace consumer behavior describes the conditions when digital infrastructure, user trust, and business readiness grow simultaneously. In this scenario, the actors involved include consumers, market traders, MSMEs, marketplaces, logistics providers, and consumer protection regulators. The key issue is the shift in trust from face-to-face relationships towards digital reputation, reviews, platform guarantees, and transaction track records. In order for the benefits not to stop at increasing adoption rates, the analysis needs to pay attention to the quality of the process, the distribution of benefits, and the ability of users to understand the consequences of digital decisions. Risks to anticipate include impulse buying, reliance on promotions, fake reviews, data misuse, and weakening bargaining power of small sellers. Therefore, relevant strategies are consumer literacy, transparency of promotional algorithms, strengthening of traditional digital markets, and dispute resolution standards. Indicators that can be monitored include the frequency of online shopping, transaction value, complaint rate, customer retention, store rating, and the proportion of MSMEs who are upgraded. This approach helps research move from trend descriptions to more responsible impact evaluation.

The uneven growth scenario of marketplace consumer behavior transformation describes conditions when adoption is concentrated in urban areas, large enterprises, or higher-educated users. In this scenario, the actors involved include consumers, market traders, MSMEs, marketplaces, logistics providers, and consumer protection regulators. The key issue is the shift in trust from face-to-face relationships towards digital reputation, reviews, platform guarantees, and transaction track records. In order for the benefits not to stop at increasing adoption rates, the analysis needs to pay attention to the quality of the process, the distribution of benefits, and the ability of users to understand the consequences of digital decisions. Risks to anticipate include impulse buying, reliance on promotions, fake reviews, data misuse, and weakening bargaining power of small sellers. Therefore, relevant strategies are consumer literacy, transparency of promotional algorithms, strengthening of traditional digital markets, and dispute resolution standards. Indicators that can be monitored include the frequency of online shopping, transaction value, complaint rate, customer retention, store rating, and the proportion of MSMEs who are upgraded. This approach helps research move from trend descriptions to more responsible impact evaluation.

The consumer protection scenario in the transformation of marketplace consumer behavior describes the conditions when technological innovation is accompanied by complaint mechanisms, security standards, and information transparency. In this scenario, the actors involved include consumers, market traders, MSMEs, marketplaces, logistics providers, and consumer protection regulators. The key issue is the shift in trust from face-to-face relationships towards digital reputation, reviews, platform guarantees, and transaction track records. In order for the benefits not to stop at increasing adoption rates, the analysis needs to pay attention to the quality of the process, the distribution of benefits, and the ability of users to understand the consequences of digital decisions. Risks to anticipate include impulse buying, reliance on promotions, fake reviews, data misuse, and weakening bargaining power of small sellers. Therefore, relevant strategies are consumer literacy, transparency of promotional algorithms, strengthening of traditional digital markets, and dispute resolution standards. Indicators that can be monitored include the frequency of online shopping, transaction value, complaint rate, customer retention, store rating, and the proportion of MSMEs who are upgraded. This

approach helps research move from trend descriptions to more responsible impact evaluation.

The cost efficiency scenario in the transformation of marketplace consumer behavior describes the condition when business actors use technology to reduce operational costs without reducing service quality. In this scenario, the actors involved include consumers, market traders, MSMEs, marketplaces, logistics providers, and consumer protection regulators. The key issue is the shift in trust from face-to-face relationships towards digital reputation, reviews, platform guarantees, and transaction track records. In order for the benefits not to stop at increasing adoption rates, the analysis needs to pay attention to the quality of the process, the distribution of benefits, and the ability of users to understand the consequences of digital decisions. Risks to anticipate include impulse buying, reliance on promotions, fake reviews, data misuse, and weakening bargaining power of small sellers. Therefore, relevant strategies are consumer literacy, transparency of promotional algorithms, strengthening of traditional digital markets, and dispute resolution standards. Indicators that can be monitored include the frequency of online shopping, transaction value, complaint rate, customer retention, store rating, and the proportion of MSMEs who are upgraded. This approach helps research move from trend descriptions to more responsible impact evaluation.

The scenario of platform dependence on the transformation of marketplace consumer behavior illustrates a condition when small actors are overly dependent on the rules, costs, and algorithms of large digital actors. In this scenario, the actors involved include consumers, market traders, MSMEs, marketplaces, logistics providers, and consumer protection regulators. The key issue is the shift in trust from face-to-face relationships towards digital reputation, reviews, platform guarantees, and transaction track records. In order for the benefits not to stop at increasing adoption rates, the analysis needs to pay attention to the quality of the process, the distribution of benefits, and the ability of users to understand the consequences of digital decisions. Risks to anticipate include impulse buying, reliance on promotions, fake reviews, data misuse, and weakening bargaining power of small sellers. Therefore, relevant strategies are consumer literacy, transparency of promotional algorithms, strengthening of traditional digital markets, and dispute resolution standards. Indicators that can be monitored include the frequency of online shopping, transaction value, complaint rate, customer retention, store rating, and the proportion of MSMEs who are upgraded. This approach helps research move from trend descriptions to more responsible impact evaluation.

The low literacy scenario in marketplace consumer behavior transformation describes a condition when users adopt technology because of promotion, but do not yet understand the risks, rights, and obligations. In this scenario, the actors involved include consumers, market traders, MSMEs, marketplaces, logistics providers, and consumer protection regulators. The key issue is the shift in trust from face-to-face relationships towards digital reputation, reviews, platform guarantees, and transaction track records. In order for the benefits not to stop at increasing adoption rates, the analysis needs to pay attention to the quality of the process, the distribution of benefits, and the ability of users to understand the consequences of digital decisions. Risks to anticipate include impulse buying, reliance on promotions, fake reviews, data misuse, and weakening bargaining power of small sellers. Therefore, relevant strategies are consumer literacy, transparency of promotional algorithms, strengthening of traditional digital markets, and dispute resolution standards. Indicators that can be monitored include the frequency of online shopping, transaction value, complaint rate, customer retention,

store rating, and the proportion of MSMEs who are upgraded. This approach helps research move from trend descriptions to more responsible impact evaluation.

The data governance scenario in the transformation of marketplace consumer behavior describes the conditions when transaction and behavioral data become an economic asset as well as a source of privacy risk. In this scenario, the actors involved include consumers, market traders, MSMEs, marketplaces, logistics providers, and consumer protection regulators. The key issue is the shift in trust from face-to-face relationships towards digital reputation, reviews, platform guarantees, and transaction track records. In order for the benefits not to stop at increasing adoption rates, the analysis needs to pay attention to the quality of the process, the distribution of benefits, and the ability of users to understand the consequences of digital decisions. Risks to anticipate include impulse buying, reliance on promotions, fake reviews, data misuse, and weakening bargaining power of small sellers. Therefore, relevant strategies are consumer literacy, transparency of promotional algorithms, strengthening of traditional digital markets, and dispute resolution standards. Indicators that can be monitored include the frequency of online shopping, transaction value, complaint rate, customer retention, store rating, and the proportion of MSMEs who are upgraded. This approach helps research move from trend descriptions to more responsible impact evaluation.

The MSME inclusion scenario in the transformation of marketplace consumer behavior describes the conditions when technology opens up market access, recording, payment, and financing for small businesses. In this scenario, the actors involved include consumers, market traders, MSMEs, marketplaces, logistics providers, and consumer protection regulators. The key issue is the shift in trust from face-to-face relationships towards digital reputation, reviews, platform guarantees, and transaction track records. In order for the benefits not to stop at increasing adoption rates, the analysis needs to pay attention to the quality of the process, the distribution of benefits, and the ability of users to understand the consequences of digital decisions. Risks to anticipate include impulse buying, reliance on promotions, fake reviews, data misuse, and weakening bargaining power of small sellers. Therefore, relevant strategies are consumer literacy, transparency of promotional algorithms, strengthening of traditional digital markets, and dispute resolution standards. Indicators that can be monitored include the frequency of online shopping, transaction value, complaint rate, customer retention, store rating, and the proportion of MSMEs who are upgraded. This approach helps research move from trend descriptions to more responsible impact evaluation.

The adaptive regulatory scenario on the transformation of marketplace consumer behavior describes the conditions when the government makes clear rules but still provides room for experimentation for innovation. In this scenario, the actors involved include consumers, market traders, MSMEs, marketplaces, logistics providers, and consumer protection regulators. The key issue is the shift in trust from face-to-face relationships towards digital reputation, reviews, platform guarantees, and transaction track records. In order for the benefits not to stop at increasing adoption rates, the analysis needs to pay attention to the quality of the process, the distribution of benefits, and the ability of users to understand the consequences of digital decisions. Risks to anticipate include impulse buying, reliance on promotions, fake reviews, data misuse, and weakening bargaining power of small sellers. Therefore, relevant strategies are consumer literacy, transparency of promotional algorithms, strengthening of traditional digital markets, and dispute resolution standards. Indicators that can be monitored include the frequency of online shopping, transaction value, complaint rate, customer

retention, store rating, and the proportion of MSMEs who are upgraded. This approach helps research move from trend descriptions to more responsible impact evaluation.

The system resilience scenario in marketplace consumer behavior transformation describes the conditions when the ecosystem is able to stay running in the event of network disruptions, market changes, or security risks. In this scenario, the actors involved include consumers, market traders, MSMEs, marketplaces, logistics providers, and consumer protection regulators. The key issue is the shift in trust from face-to-face relationships towards digital reputation, reviews, platform guarantees, and transaction track records. In order for the benefits not to stop at increasing adoption rates, the analysis needs to pay attention to the quality of the process, the distribution of benefits, and the ability of users to understand the consequences of digital decisions. Risks to anticipate include impulse buying, reliance on promotions, fake reviews, data misuse, and weakening bargaining power of small sellers. Therefore, relevant strategies are consumer literacy, transparency of promotional algorithms, strengthening of traditional digital markets, and dispute resolution standards. Indicators that can be monitored include the frequency of online shopping, transaction value, complaint rate, customer retention, store rating, and the proportion of MSMEs who are upgraded. This approach helps research move from trend descriptions to more responsible impact evaluation.

The educational collaboration scenario on the transformation of marketplace consumer behavior describes the conditions when universities, industry, and the government provide curricula that are relevant to digital needs. In this scenario, the actors involved include consumers, market traders, MSMEs, marketplaces, logistics providers, and consumer protection regulators. The key issue is the shift in trust from face-to-face relationships towards digital reputation, reviews, platform guarantees, and transaction track records. In order for the benefits not to stop at increasing adoption rates, the analysis needs to pay attention to the quality of the process, the distribution of benefits, and the ability of users to understand the consequences of digital decisions. Risks to anticipate include impulse buying, reliance on promotions, fake reviews, data misuse, and weakening bargaining power of small sellers. Therefore, relevant strategies are consumer literacy, transparency of promotional algorithms, strengthening of traditional digital markets, and dispute resolution standards. Indicators that can be monitored include the frequency of online shopping, transaction value, complaint rate, customer retention, store rating, and the proportion of MSMEs who are upgraded. This approach helps research move from trend descriptions to more responsible impact evaluation.

The ethical and accountability scenario in the transformation of marketplace consumer behavior describes the conditions when technology-based decisions can be explained, audited, and accounted for. In this scenario, the actors involved include consumers, market traders, MSMEs, marketplaces, logistics providers, and consumer protection regulators. The key issue is the shift in trust from face-to-face relationships towards digital reputation, reviews, platform guarantees, and transaction track records. In order for the benefits not to stop at increasing adoption rates, the analysis needs to pay attention to the quality of the process, the distribution of benefits, and the ability of users to understand the consequences of digital decisions. Risks to anticipate include impulse buying, reliance on promotions, fake reviews, data misuse, and weakening bargaining power of small sellers. Therefore, relevant strategies are consumer literacy, transparency of promotional algorithms, strengthening of traditional digital markets, and dispute resolution standards. Indicators that can be monitored include the frequency of online shopping, transaction value, complaint rate, customer retention,

store rating, and the proportion of MSMEs who are upgraded. This approach helps research move from trend descriptions to more responsible impact evaluation.

The regional competitiveness scenario in the transformation of marketplace consumer behavior describes the condition when the region is not only a user, but also a producer of value in the digital economy. In this scenario, the actors involved include consumers, market traders, MSMEs, marketplaces, logistics providers, and consumer protection regulators. The key issue is the shift in trust from face-to-face relationships towards digital reputation, reviews, platform guarantees, and transaction track records. In order for the benefits not to stop at increasing adoption rates, the analysis needs to pay attention to the quality of the process, the distribution of benefits, and the ability of users to understand the consequences of digital decisions. Risks to anticipate include impulse buying, reliance on promotions, fake reviews, data misuse, and weakening bargaining power of small sellers. Therefore, relevant strategies are consumer literacy, transparency of promotional algorithms, strengthening of traditional digital markets, and dispute resolution standards. Indicators that can be monitored include the frequency of online shopping, transaction value, complaint rate, customer retention, store rating, and the proportion of MSMEs who are upgraded. This approach helps research move from trend descriptions to more responsible impact evaluation.

The channel integration scenario in marketplace consumer behavior transformation describes the condition when physical and digital channels complement each other in a single user journey. In this scenario, the actors involved include consumers, market traders, MSMEs, marketplaces, logistics providers, and consumer protection regulators. The key issue is the shift in trust from face-to-face relationships towards digital reputation, reviews, platform guarantees, and transaction track records. In order for the benefits not to stop at increasing adoption rates, the analysis needs to pay attention to the quality of the process, the distribution of benefits, and the ability of users to understand the consequences of digital decisions. Risks to anticipate include impulse buying, reliance on promotions, fake reviews, data misuse, and weakening bargaining power of small sellers. Therefore, relevant strategies are consumer literacy, transparency of promotional algorithms, strengthening of traditional digital markets, and dispute resolution standards. Indicators that can be monitored include the frequency of online shopping, transaction value, complaint rate, customer retention, store rating, and the proportion of MSMEs who are upgraded. This approach helps research move from trend descriptions to more responsible impact evaluation.

The continuous learning scenario in the transformation of marketplace consumer behavior describes the conditions when users and business actors continue to adjust behavior based on experience and data. In this scenario, the actors involved include consumers, market traders, MSMEs, marketplaces, logistics providers, and consumer protection regulators. The key issue is the shift in trust from face-to-face relationships towards digital reputation, reviews, platform guarantees, and transaction track records. In order for the benefits not to stop at increasing adoption rates, the analysis needs to pay attention to the quality of the process, the distribution of benefits, and the ability of users to understand the consequences of digital decisions. Risks to anticipate include impulse buying, reliance on promotions, fake reviews, data misuse, and weakening bargaining power of small sellers. Therefore, relevant strategies are consumer literacy, transparency of promotional algorithms, strengthening of traditional digital markets, and dispute resolution standards. Indicators that can be monitored include the frequency of online shopping, transaction value, complaint rate, customer retention,

store rating, and the proportion of MSMEs who are upgraded. This approach helps research move from trend descriptions to more responsible impact evaluation.

The reputation risk scenario in marketplace consumer behavior transformation describes the conditions when a single service, security, or misinformation incident can lower the trust of the ecosystem. In this scenario, the actors involved include consumers, market traders, MSMEs, marketplaces, logistics providers, and consumer protection regulators. The key issue is the shift in trust from face-to-face relationships towards digital reputation, reviews, platform guarantees, and transaction track records. In order for the benefits not to stop at increasing adoption rates, the analysis needs to pay attention to the quality of the process, the distribution of benefits, and the ability of users to understand the consequences of digital decisions. Risks to anticipate include impulse buying, reliance on promotions, fake reviews, data misuse, and weakening bargaining power of small sellers. Therefore, relevant strategies are consumer literacy, transparency of promotional algorithms, strengthening of traditional digital markets, and dispute resolution standards. Indicators that can be monitored include the frequency of online shopping, transaction value, complaint rate, customer retention, store rating, and the proportion of MSMEs who are upgraded. This approach helps research move from trend descriptions to more responsible impact evaluation.

The scenario of measuring the impact on the transformation of marketplace consumer behavior describes the conditions when success is not only calculated from transaction volume, but also from the quality of socio-economic benefits. In this scenario, the actors involved include consumers, market traders, MSMEs, marketplaces, logistics providers, and consumer protection regulators. The key issue is the shift in trust from face-to-face relationships towards digital reputation, reviews, platform guarantees, and transaction track records. In order for the benefits not to stop at increasing adoption rates, the analysis needs to pay attention to the quality of the process, the distribution of benefits, and the ability of users to understand the consequences of digital decisions. Risks to anticipate include impulse buying, reliance on promotions, fake reviews, data misuse, and weakening bargaining power of small sellers. Therefore, relevant strategies are consumer literacy, transparency of promotional algorithms, strengthening of traditional digital markets, and dispute resolution standards. Indicators that can be monitored include the frequency of online shopping, transaction value, complaint rate, customer retention, store rating, and the proportion of MSMEs who are upgraded. This approach helps research move from trend descriptions to more responsible impact evaluation.

The sustainability scenario in the transformation of marketplace consumer behavior describes the conditions when digital growth considers worker welfare, consumer protection, and resource efficiency. In this scenario, the actors involved include consumers, market traders, MSMEs, marketplaces, logistics providers, and consumer protection regulators. The key issue is the shift in trust from face-to-face relationships towards digital reputation, reviews, platform guarantees, and transaction track records. In order for the benefits not to stop at increasing adoption rates, the analysis needs to pay attention to the quality of the process, the distribution of benefits, and the ability of users to understand the consequences of digital decisions. Risks to anticipate include impulse buying, reliance on promotions, fake reviews, data misuse, and weakening bargaining power of small sellers. Therefore, relevant strategies are consumer literacy, transparency of promotional algorithms, strengthening of traditional digital markets, and dispute resolution standards. Indicators that can be monitored include the frequency of online shopping, transaction value, complaint rate, customer

retention, store rating, and the proportion of MSMEs who are upgraded. This approach helps research move from trend descriptions to more responsible impact evaluation.

3.9. Findings Operationalization Matrix

Table 3. Operationalization of advanced analytics dimensions

Dimensions	Operational definition	Indicator	Measurement source
Adoption	How far the technology is used by the target actor	Number of active users, intensity of use, variety of features utilized	User surveys, platform aggregate data, regulator reports
Trust	a level of confidence that the system is safe, fair, and reliable	Complaint Rate, Successful Dispute Resolution, Perception of Security	Perception surveys, complaint data, service audits
Efficiency	Changes in time costs, transaction fees, and administrative fees	Turnaround time, service fee, productivity per transaction	Process observations, operational reports, case studies
Inclusions	the ability of small or vulnerable groups to benefit	participation of MSMEs, rural areas, new users, access to financing	administrative data, MSME surveys, regional mapping
Risks	possible financial, data, reputational, or social loss	cases of fraud, data leakage, misdecisions, user churn	Incident reports, security data, actor interviews
Justice	Distribution of costs and benefits between actors	Margin changes, training access, compliance costs, bargaining positions	Policy analysis, business actor surveys, price data
Sustainability	the ability of the system to survive without harming small actors	User retention, business health, service stability, regulatory adaptation	Data panel, longitudinal studies, program evaluation

3.10. Policy Agenda and Applied Research

The agenda for the Government is to provide adaptive regulations, public data, user protection guidelines, and a safe innovation test room. In the context of marketplace consumer behavior transformation, this role cannot be carried out in isolation because the digital economy is an ecosystem. The success of one actor depends heavily on the readiness of other actors. For example, industrial innovation requires regulatory certainty, while good regulation requires empirical data and feedback from users. Therefore, collaboration between institutions is a prerequisite for digital transformation to produce broad and accountable benefits.

The agenda for universities is to develop a digital economy curriculum, data laboratories, policy-based research, and service to MSMEs. In the context of marketplace consumer behavior transformation, this role cannot be carried out in isolation because

the digital economy is an ecosystem. The success of one actor depends heavily on the readiness of other actors. For example, industrial innovation requires regulatory certainty, while good regulation requires empirical data and feedback from users. Therefore, collaboration between institutions is a prerequisite for digital transformation to produce broad and accountable benefits.

The agenda for the industry is to increase service transparency, user-friendly design, risk audits, and partner capacity building programs. In the context of marketplace consumer behavior transformation, this role cannot be carried out in isolation because the digital economy is an ecosystem. The success of one actor depends heavily on the readiness of other actors. For example, industrial innovation requires regulatory certainty, while good regulation requires empirical data and feedback from users. Therefore, collaboration between institutions is a prerequisite for digital transformation to produce broad and accountable benefits.

The agenda for MSMEs is to build a digital identity, record transactions, reputation management, and product differentiation strategies. In the context of marketplace consumer behavior transformation, this role cannot be carried out in isolation because the digital economy is an ecosystem. The success of one actor depends heavily on the readiness of other actors. For example, industrial innovation requires regulatory certainty, while good regulation requires empirical data and feedback from users. Therefore, collaboration between institutions is a prerequisite for digital transformation to produce broad and accountable benefits.

The agenda for consumers is to improve risk literacy, the ability to check information, and the discipline in making digital decisions. In the context of marketplace consumer behavior transformation, this role cannot be carried out in isolation because the digital economy is an ecosystem. The success of one actor depends heavily on the readiness of other actors. For example, industrial innovation requires regulatory certainty, while good regulation requires empirical data and feedback from users. Therefore, collaboration between institutions is a prerequisite for digital transformation to produce broad and accountable benefits.

The agenda for local communities is to bridge the needs of the community with digital solutions that are in accordance with the language, culture, and character of the region. In the context of marketplace consumer behavior transformation, this role cannot be carried out in isolation because the digital economy is an ecosystem. The success of one actor depends heavily on the readiness of other actors. For example, industrial innovation requires regulatory certainty, while good regulation requires empirical data and feedback from users. Therefore, collaboration between institutions is a prerequisite for digital transformation to produce broad and accountable benefits.

The agenda for technical regulators is to develop standards for interoperability, security, reporting, and audit mechanisms that do not burden small actors. In the context of marketplace consumer behavior transformation, this role cannot be carried out in isolation because the digital economy is an ecosystem. The success of one actor depends heavily on the readiness of other actors. For example, industrial innovation requires regulatory certainty, while good regulation requires empirical data and feedback from users. Therefore, collaboration between institutions is a prerequisite for digital transformation to produce broad and accountable benefits.

Table 4. Collaborative agenda based on ecosystem actors

Actors	Strategic role	Forms of intervention	Expected output
Government	Provide adaptive regulation, public data, user protection guidelines, and a secure innovation test room	programs, regulations, training, audits, or mentoring	An ecosystem that is more inclusive, safe, and productive
Colleges	developing digital economy curriculum, data laboratories, policy-based research, and service to MSMEs	programs, regulations, training, audits, or mentoring	An ecosystem that is more inclusive, safe, and productive
Industry	Improved service transparency, user-friendly design, risk audits, and partner capacity building programs	programs, regulations, training, audits, or mentoring	An ecosystem that is more inclusive, safe, and productive
MSMEs	Build digital identity, transaction logging, reputation management, and product differentiation strategies	programs, regulations, training, audits, or mentoring	An ecosystem that is more inclusive, safe, and productive
Consumers	Improve risk literacy, information checking ability, and discipline in digital decision-making	programs, regulations, training, audits, or mentoring	An ecosystem that is more inclusive, safe, and productive
Local communities	Bridging the needs of the community with digital solutions that are appropriate to the language, culture, and character of the region	programs, regulations, training, audits, or mentoring	An ecosystem that is more inclusive, safe, and productive
Technical regulator	Develop standards for interoperability, security, reporting, and audit mechanisms that do not burden small actors	programs, regulations, training, audits, or mentoring	An ecosystem that is more inclusive, safe, and productive

3.11. Limitations of Analysis and Anticipation of Bias

The first limitation is the use of aggregate data. Aggregate data is useful for seeing the scale and direction of change, but it is not yet able to explain variations in individual behavior. Differences in income, education, region, age, and digital experience can result in patterns that differ from the national average. Therefore, the results of this article need

to be read as a macro synthesis that requires microtesting. The second limitation is the potential for bias in industry report sources. Industry reports often have rich data, but they can also carry certain narrative interests. To reduce bias, this article combines industry reports with government data, regulatory publications, and academic literature. This triangulation does not eliminate all bias, but reinforces the prudence of interpretation. The third limitation is the dynamics of the digital economy which is very fast. User numbers, transactions, regulations, and technology can change in a short period of time. Therefore, this kind of article needs to be updated regularly. Claims that are quantitative should always be accompanied by data years, sources, and interpretation limitations. The fourth limitation has to do with the concept of success. Many digital analytics focus too much on the number of users or the value of transactions. In fact, more substantive successes include service quality, security, equitable distribution of benefits, strengthening small actors, and consumer protection. This article attempts to expand on the indicator, but its measurement still requires further research. The fifth limitation is the absence of causal modeling. The relationship between technology and behavioral change is not always one-way. Technology influences behavior, but people's behavior also shapes technological features. Follow-up studies can use panel models, field experiments, or mixed methods to test the mechanism more robustly.

Table 5. Potential bias and analysis mitigation strategies

Potential bias	Impact on interpretation	How to mitigate
Aggregate data	hide individual and regional variations	Use microsurveys and spatial analysis
Industry reports	narrative can be overly optimistic	Triangulation with regulatory and academic data
Quick changes	numbers can become obsolete	Enter the year and update the data
Focus volume	Ignoring the quality of the benefits	Add safety, inclusion, and satisfaction indicators
Without causality	The relationship is only descriptive	Continue with empirical models and mixed methods

3.12. Integrative Narrative for Research Model Development

Advanced research models can be built by placing individual, organizational, and institutional factors as interacting variables. Individual factors include literacy, experience, risk perception, and trust. Organizational factors include technology capacity, service quality, and data management capabilities. Institutional factors include regulations, public infrastructure, and social norms. With this structure, the analysis does not stop at the simple relationship between technology and behavior, but looks at how technology works through a specific socio-economic environment.

Quantitative approaches can use structural equation models to test the relationship between convenience, usability, trust, risk, and intent of use. However, the model needs to be equipped with Indonesian contextual variables, such as community strength, promotional role, family influence, fraud experience, and the quality of regional infrastructure. Without contextual variables, digital adoption models tend to be too general and lack a grasp of the diversity of people's behaviors. A qualitative approach remains important because many digital decisions are influenced by reasons that are not always reflected in numbers. In-depth interviews can delve into how

businesses understand the benefits and risks, how consumers interpret security, and how regulators see the line between innovation and protection. Narrative data like this is useful to explain why two groups with the same access to technology might exhibit different behaviors. The blended method is a strong choice for this topic. Surveys can provide an overview of general patterns, while interviews and case studies can shed light on the mechanisms behind those patterns. For example, survey data can show that trust influences adoption, but interviews can shed light on the source of that trust: personal experiences, family recommendations, platform reputation, or previous problem-solving success. Spatial analysis is also relevant because Indonesia's digital economy is unevenly distributed between regions. Regions with strong internet infrastructure, high merchant density, and good digital literacy will experience faster transformation. In contrast, regions with limited access may experience slower adoption or use only basic features. Therefore, regional maps, digital readiness indices, and local transaction data can enrich subsequent research.

Policy evaluations should look not only at administrative outputs, but also at the real impact on users. Digitalization programs often succeed in increasing the number of accounts, merchants, or transactions, but not necessarily in increasing profits, well-being, or security. Impact evaluation needs to distinguish between outputs, outcomes, and impacts. Output is the number of participants or transactions; Outcome is a change in ability; Impact is a change in well-being and sustainability. In the development of theory, the Indonesian context can contribute to the global digital economy literature because it has a combination of large markets, high internet penetration, dominant MSMEs, archipelago areas, and social diversity. This combination makes Indonesia an important laboratory for understanding how digital technology operates in heterogeneous developing countries. Indonesia's findings can expand theories that have been based on developed countries. In practical terms, advanced research needs to produce instruments that are easy for policymakers to use. Readiness indices, risk dashboards, literacy matrices, and simple audit guidelines can help public institutions and business actors make decisions. Academic articles would be more useful if they could be translated into work tools that improve policies and practices in the field. The development of indicators must pay attention to the balance between efficiency and fairness. Efficiency indicators such as transaction volume, processing time, and service costs need to be paired with fairness indicators such as small group access, cost burden, risk of loss, and ability to file complaints. This balance prevents digital transformation from being judged only by growth, when the quality of growth is just as important. Finally, the entire analysis needs to keep in mind that technology is a tool, not an end. The main goals of the digital economy are to improve welfare, expand opportunities, strengthen competitiveness, and improve service quality. As technology begins to create new risks, research and policy must be able to correct course. Thus, digital transformation can be a humane, inclusive, and sustainable process.

3.13. Stage-Based Implementation Recommendations

The first stage is needs mapping. Each actor needs to understand the problem they want to solve before choosing a digital solution. This mapping includes the slowest processes, the most frequent emerging risks, the most vulnerable user groups, and available data sources. Without mapping, digital transformation can turn into the use of directionless technology. The second stage is the preparation of minimum standards. Minimum standards are necessary so that innovation does not come at the expense of safety, fairness, and affordability. These standards can be in the form of verification

procedures, information quality, limits of responsibility, data protection, and complaint mechanisms. Minimum standards don't have to be complicated, but they should be clear and easy to understand. The third stage is the training of key actors. Training should not only be in the form of one-way socialization, but case-based assistance. Users need to practice dealing with real scenarios such as failed transactions, unclear information, consumer complaints, fraud, regulatory changes, or the use of new features. A practical approach is more effective to improve digital readiness.

The fourth phase is a limited pilot project. Before a policy or feature is widely implemented, small-group trials can help identify technical and social issues. Pilot projects can also measure implementation costs, support needs, user responses, and unforeseen risks. The results of the trial should be published concisely so that it can be a joint learning. The fifth stage is data integration and periodic evaluation. The data generated by the digital system must be processed into policy information, not just stored. Periodic evaluations can help see if goals are being achieved, who is benefiting, who is falling behind, and what risks are increasing. This evaluation is the basis for improving regulations and service design. The sixth stage is the strengthening of the correction mechanism. In a digital ecosystem, mistakes can happen very quickly and have a far-reaching impact. Therefore, every policy and service should have an easily accessible remediation path. Users need to know who to report to, how long the response should take, and what evidence is needed. The correction mechanism is an important part of trust. The seventh stage is the development of regional collaboration. Many digital issues emerge locally, such as market trader literacy, network quality, communication language, and transaction habits. Local governments, campuses, communities, and local business actors can be the link between national policies and community needs. Regional collaboration makes digital transformation more grounded. The eighth stage is the preparation of long-term impact indicators. Short-term indicators such as the number of users are important, but not enough. Long-term indicators need to assess increased revenue, business efficiency, user safety, compliance, access to financing, and quality of service. With indicators like this, digital transformation can be evaluated in terms of welfare, not just activities. The ninth stage is adaptive regulatory reform. Digital regulations should not be too slow, but they should also not change too often so as to confuse business actors. Public consultation mechanisms, regulatory sandboxes, and regulatory impact evaluations can help maintain a balance between legal certainty and innovation flexibility. The tenth stage is the formation of a responsible digital culture. This culture includes the habit of checking information, respecting personal data, reporting problems, using technology for productivity, and avoiding manipulative practices. Digital culture is not formed only through applications, but through education, institutional examples, and a secure user experience.

3.14. Academic Implications for the Development of the Digital Economy Curriculum

This topic also has academic implications for the development of the digital economy curriculum. It is not enough for students to understand the definition of technology, but they need to be able to read the relationship between data, behavior, regulation, and business strategy. A good curriculum needs to combine economic theory, statistics, data ethics, information systems, and public policy. Learning can be directed to Indonesian case studies so that students see real complexities. The case of marketplaces, AI, digital taxes, QRIS, MSMEs, and consumer protection can be used as material for data-based discussions. Thus, students learn that digital transformation is not only a problem of application, but also a problem of institutions and behavior.

Analytical skills need to be strengthened through the practice of reading official reports, assessing the validity of sources, making simple visualizations, and drafting policy recommendations. This skill is important because many digital economy decisions are made based on ever-changing data. Students need to be trained to be critical of numbers, not just quote them. The curriculum should also include community-based projects. Students can assist MSMEs, traditional markets, schools, or local communities in understanding digital technology. Projects like this bring together theory and practice and help campuses play a role in an inclusive digital transformation. From the research side, universities can build secondary data repositories and survey instruments that can be used across topics. Standardization of instruments facilitates comparisons between time and between regions. With more consistent data, Indonesia's digital economy research can evolve from descriptive writing to stronger empirical analysis. The final implication is the need for digital research ethics. Researchers should be careful in using transaction data, user data, and platform data. The principles of data minimization, anonymization, consent, and storage security should be part of academic training. Without ethics, digital economy research can pose a risk to the subjects it wants to protect.

4. CONCLUSION

The transformation of Indonesian consumers from traditional markets to marketplaces is a change in the ecosystem, not just a change in shopping locations. Consumers are increasingly combining physical and digital channels to gain price, variety, convenience, speed, and a sense of security. Marketplaces serve as trust infrastructure through ratings, reviews, escrow, logistics, and digital payments. However, this transformation also poses risks in the form of impulsive consumption, reliance on algorithms, information asymmetry, and data protection. From a policy perspective, digitalization needs to be directed to strengthen consumers and MSMEs at the same time. Digital consumer literacy, platform transparency, dispute resolution mechanisms, and improving the capabilities of MSMEs are prerequisites for the marketplace not only to increase transactions, but also to improve the quality of the digital economy. Further research is recommended using a cross-provincial primary survey to measure the factors influencing the choice of shopping channels. Subsequent research can also compare consumer behavior by generation, gender, and urban-rural region. In addition, a quantitative study of the impact of digital promotions on impulse purchases needs to be developed.

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Authors state no conflict of interest.

Informed Consent

Not applicable because this study uses secondary data and published literature without collecting personal data from human participants.

Ethical Approval

Not applicable because this study does not involve experiments with humans or animals.

Data Availability

The data supporting the findings of this study are available in the public reports and official publications listed in the References section. Derived data supporting figures and tables are available within the article.

Declaration of Generative AI and AI-assisted Technologies

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